SOLAR STIK®

PROGRAMMING VALUES FOR THE PRO-VERTER 5000-220 AFF1 DARI GATE SYSTEMS

Item # 20-0104033

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PRO-Verter Programmable Settings

Navigating “Select Group” and “Select Parameter” Menu Maps

The Enter key is used to enter “Select Group” menu map from any operating mode screen.

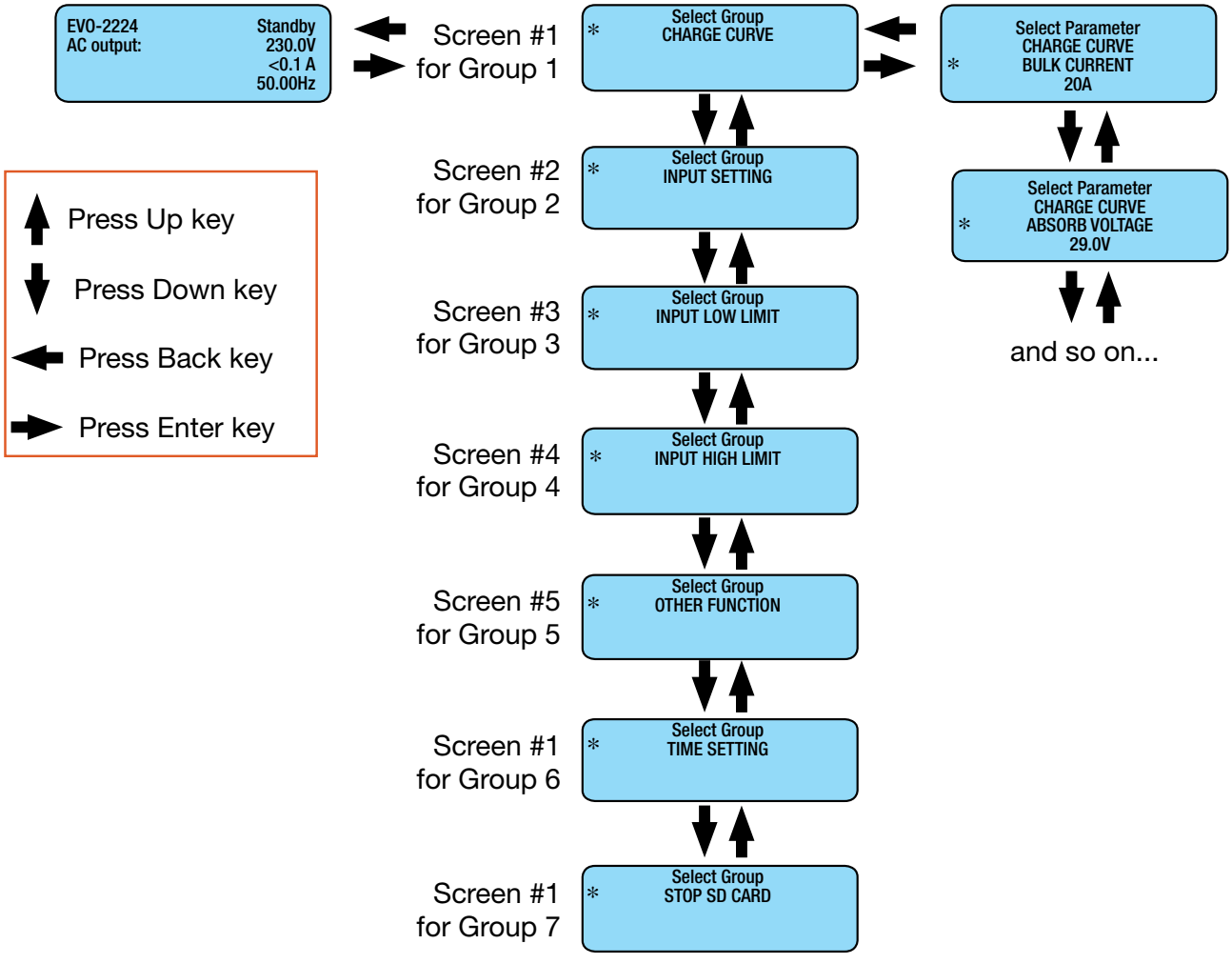
After the Enter key is pressed, the Up/Down keys are used to navigate to one of the seven (7) “Select Group” screens.

When the group for the desired setting is displayed on the LCD, the Enter key is used again to select this group. The Up and Down keys are used to move to the individual screens within the group.

The third line shows the name of the name of the parameter that can be varied with an asterisk sign “*” next to it. The asterisk sign * indicates this parameter will be selected when the Enter key is pressed and the associated value can be changed.

Pressing the Back key will exit to the previous level.

There is a 30-second time-out for setting parameters; after 30 seconds, the setting mode will be cancelled and the display will revert to the operating mode screen associated with current operation.



Parameter Groups: PRO-Verter Programmable Settings

“Parameter Groups” are the top-level categories of PRO-Verter programming.

Table 1. Programmable Parameter Groups: Descriptions

List of Parameter Groups 1 to 7		
Parameter	**Group Name**	**Description**
Group 1	Charge Curve	Parameters for battery charging/battery protection.
Group 2	Input Setting	Parameters for grid/generator input current level, frequency range.
Group 3	Input Low Limit	Parameters for grid/generator input low voltage level.
Group 4	Input High Limit	Parameters for grid/generator input high voltage level.
Group 5	Other Function	Power Saving/Alarm/Remote Switch/Multi-function Relay/etc.
Group 6	Time Setting	Local time clock setting.
Group 7	Stop SD Card	Shown only when SD card is inserted. To stop SD card accessed and to remove the SD card.

Please contact Solar Stik Technical Support before changing settings other than the clock or the AC Input settings. These settings are highlighted orange in the tables that follow.

Charge Curve Programmable Settings

Parameters in this group define System battery charging protocols.

Table 2. Parameters for Battery Charging/Battery Protection

GROUP 1: CHARGE CURVE		
Parameter	**Parameter Value**	**Description**
Bulk Current	100 A	Sets the maximum charging current during the Bulk Charging Stage.
Absorp Voltage	29.0 V	GENERATOR STOP VOLTAGE + Absorp Time 10 min. Sets the charging voltage in the Constant Voltage Absorption Stage.
Equalize Voltage	29.0 V	Not applicable when using $LiFePO_4$ batteries.
Float Voltage	29.0 V	Sets the charging voltage in the Constant Voltage Float Stage.
Compensate	-3mV /°C/Cell	Sets the temperature compensation for the battery.
Batt Over Volt (Shut Down)	32.0 V	Sets the upper battery voltage threshold at which inverting/charging operations are switched off to protect the PRO-Verter.
Reset Voltage (Low Voltage Reset)	29.0 V	The PRO-Verter inverter will restart when the battery voltage rises to this set value or above after “Battery low voltage!” shutdown occurs.
Low Volt Alarm	23.8 V	Battery voltage at which the “Alarm” triggers AGS to start generator.
Batt Low Voltage	22.0 V	Sets the battery low voltage threshold at which the PRO-Verter inverter will shut down to protect the battery from overdischarge.
LV Detect Time	60 sec	This is the timer for shutting off the inverter. Battery voltage must be at the low voltage set point for this period of time before the inverter shuts off.
LV Cut Off Time	3600 sec	This timer shuts off everything including the charger. (The load on the inverter will already be cut off during this time.)
Equalize-4 Stages	0=NO	Equalize disabled with $LiFePO_4$ batteries.
Mode	0	0 = Normal (Default).....Grid / Generator priority Also called Off-Line Mode
Online Mode	0 = Option 1 (Default) Offline	
Reset To Bulk	23.8 V	GENERATOR START VOLTAGE. Sets battery voltage at which the charger will terminate current charging stage of the selected Charging Profile and restart charging from the beginning.
Gs Detect Time	60 sec	A timer that sets the duration the battery voltage has to remain at threshold of Low Volt Alarm or lower before generator auto start/stop.
Gen On Time	30 minutes	N/A as programmed
Gen Off Delay	1 minute	Must be in the generator-stop condition for 1 minute before opening the relay
Absorp Time	10 min	
Absorp Exit Amps	6 A	Set to ~10% of battery bank capacity.) Value not in play with 2 Stage Type 1 charging
Charging Profile	3 = 2 Stage Type 1	Mimics CC/CV-type charging. Affects when generator turns off.

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GROUP 1: CHARGE CURVE (Continued from previous page)		
Parameter	**Parameter Value**	**Description**
BATTERY TYPE	1 = lithium iron phosphate	N/A. A CC/CV charging profile appropriate for $LiFePO_4$ batteries has been programmed. Do not change.
SAFE CHARGING	0 Min	This timer, if set, will protect a depleted battery from being exposed to potentially heavy load if AC input is intermittent when first reacquired.
EXTERNAL CHARGER	1 = NOT AFFECT	The “external charger” is PV.

Input Setting Programmable Settings

Table 3. Parameters for Grid/Generator Input Current Level, Frequency Range

GROUP 2: INPUT SETTING		
Parameter	**Setting Value**	**Description**
Default Freq	50 Hz	Default frequency sets the Inverter frequency, which is also the standard frequency for AC input.
Grid Max Current	30 A	Value set to rated output current of grid power source.
Gen Max Current	28 A	Value must be set to match generator(s) output/number of connected PRO-Verters. The 13 kW generator can supply 56 A @230 VAC. Most Systems have two connected PRO-Verters.
High Cut Off	55 Hz	If the AC input frequency is over the value of High Cut Off when in Charge mode, the PRO-Verter will transfer to Invert mode.
High Reset	54 Hz	This is the reset frequency at which the unit will revert to Charge mode after it has switched over to Invert mode due to input frequency rising above High Cut Off.
Low Cut Off	45 Hz	If the AC input frequency is below Low Cut Off value when in Charge mode, the PRO-Verter will transfer to Invert mode.
Low Reset	46 Hz	This is the reset frequency at which the unit will revert to Charge mode after it has switched over to Invert mode due to input frequency falling below Low Cut Off.
Sync Grid	0 = Fine	Sets “syncing” algorithm for AC input 0 = Stable AC Input; 1 = not Stable AC input
Sync Gen	0 = Fine	Sets “syncing” algorithm for AC input 0 = Stable AC Input; 1 = not Stable AC Input
Input OC Protect	0 = INV Mode	If the AC input current is 1 A more than the programmed value of Grid Max Current/Gen Max Current for more than 5 sec, the PRO-Verter will switch over to Invert mode to ensure that AC power to the load is maintained. If the load reduces to 1 A less than the programmed value of Grid Max Current/Gen Max Current for 5 sec, the PRO-Verter will switch back to Charge mode.
Input Recovery	0=Buffered	Option 0 = Under this option, the unit will initially start in “Inverting Mode”, synchronize with the AC input and then transfer to “Charging Mode” Option 1 = Direct: The PRO-Verter will start in Charge mode.

Input Low Limit Programmable Settings

Table 4. Parameters for Grid/Generator Input Low Voltage Level

GROUP 3: INPUT LOW LIMIT		
Parameter	**Setting Value**	**Description**
Reset Voltage	200.0 V	This is the reset voltage at which the PRO-Verter will revert to Charge mode after it has switched over to Invert mode due to input voltage falling to Cut Off Volt 1/Cut Off Volt 2/Cut Off Volt 3.
Cut Off Volt 1	190.0 V	If during Charge mode, the AC input voltage falls below Cut Off Volt 1 for period > Detect Time 1, the PRO-Verter will transfer to Invert mode from Charge mode.
Detect Time 1	250 Cycles	This is the time limit in cycles up to which low AC input voltage Cut Off Volt 1 is allowed.
Cut Off Volt 2	180.0 V	If during Charge mode the AC input voltage falls below Cut Off Volt 2 for period > Detect Time 2, the PRO-Verter will transfer to Invert mode.
Detect Time 2	50 Cycles	This is the time limit in cycles up to which low AC input voltage Cut Off 2 is allowed.
Cut Off Volt 3	1700.0 V	If during Charge mode, the AC input voltage falls below Cut Off Volt 3 for period > Detect Time 3, the PRO-Verter will transfer to Invert mode.
Detect Time 3	1 Cycle	This is the time limit in cycles up to which the low AC input voltage Cut Off 3 is allowed.

Input High Limit Programmable Settings

Table 5. Parameters for Grid/Generator Input High Voltage Level

GROUP 4: INPUT HIGH LIMIT		
Parameter	**Setting Value**	**Description**
Reset Voltage	250.0 V	This is the reset voltage at which the PRO-Verter will revert to Charge mode after it has switched over to Invert mode due to input voltage falling to Cut Off Volt 1/Cut Off Volt 2/Cut Off Volt 3.
Cut Off Volt 1	245.0 V	If during Charge mode the AC input voltage falls below Cut Off Volt 1 for period > Detect Time 1, the PRO-Verter will transfer to Invert mode from Charge mode.
Detect Time 1	50 Cycles	This is the time limit in cycles up to which low AC input voltage Cut Off Volt 1 is allowed.
Cut Off Volt 2	1255.0 V	If during Charge mode the AC input voltage falls below Cut Off Volt 2 for period > Detect Time 2, the PRO-Verter will transfer to Invert mode.
Detect Time 2	15 Cycles	This is the time limit in cycles up to which low AC input voltage Cut Off Volt 2 is allowed.
Cut Off Volt 3	265.0 V	If during Charge mode the AC input voltage falls below Cut Off Volt 3 for period > Detect Time 3, the PRO-Verter will transfer to Invert mode.
Detect Time 3	1 Cycle	This is the time limit in cycles up to which the low AC input voltage Cut Off Volt 3 is allowed.

Other Functions Programmable Settings

Table 6. Power Saving/Alarm/Remote Switch/Multi-function Relay/etc.

GROUP 5: OTHER FUNCTIONS		
Group	**Setting Value**	**Description**
Power Saving	0 = Disable	Enable or disable Power Saving mode when in Invert mode.
Enter Point	6 W	If the value of power drawn by AC load falls to the Enter Point value for 5 sec, the unit will enter Power Save mode.
Wake Up Point	7 W	If the unit is in Power Save mode and the value of the AC power of the load rises to Wake Up Point, the unit will quit Power Save mode and will start operating in full voltage Invert mode.
Remote Switch	0 = Button	This selection is used when On/Off control of PRO-Verter is desired through external 12 VDC signal. Contact Solar Stik Technical Support.
Relay Function	2 = Generator	Ties battery voltage-related settings to generator autostart/stop.
Comm ID (Id For User Interface)	1	Communication ID: This sets the ID number for the Comm port and user interface.
Buzzer	Off	Set the buzzer On/Off.
Discharge Beep	0 = No	To select the buzzer On/Off while in Invert mode.
Default Reset	0 = No	This is to reset all of the parameters to the factory values. The factory values are not the program values set by Solar Stik.
Data Log Time	2 = 10 sec	A real time clock inside the user interface records timing. The time interval between recordings is programmable. Events and Errors are recorded as soon as they are sensed.
Parameter Save	0 = No	Save all parameters/program settings to SD card.
Temp Unit	0 = deg C	Temperature display can be selected in °C or °F.
Password Disable	1 = Yes	The default password (8052). Password may be disabled.

PRO-Verter Clock Time Setting

Table 7. Local Time Clock Setting

GROUP 6: TIME SETTING		
Group	**Setting Value**	**Description**
Time Setting	Local Current Time	24-hour clock set to local time for accurate time stamps on logged events. Password not required.

Stop SD Card Command

Shown only when SD Card is inserted. To stop SD Card accessed and to remove the SD Card.

Table 8. Instructions to Remove SD Card from PRO-Verter User Interface

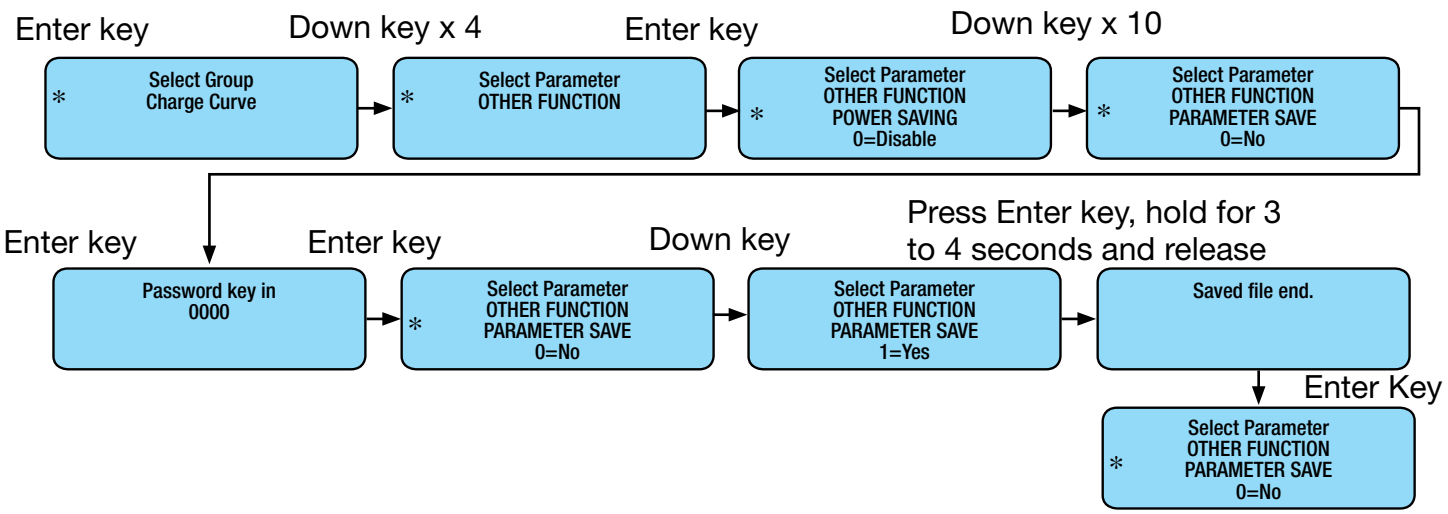
GROUP 7: STOP SD CARD		
Group	**Setting Value**	**Description**
Stop SD Card	1 = Yes to remove	Remove/eject SD card only after the operation of the card has been stopped.

Saving/Uploading Programmed Parameters

Saving Programmed PRO-Verter Parameters to SD Card

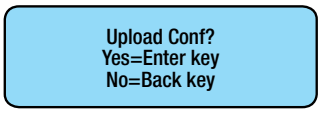
All the programmed parameters can be saved on an SD card (FAT 16/FAT 32 format, up to 16 GB capacity). The parameters will be saved in File named “xxxx_yyy.cfg”, where the first group of 4 digits xxxx is the model number of the inverter charger and the second group of 3 digits yyy is the Revision #. for that model, e.g., 074.

- For saving, first insert the SD card into the SD card slot.
- Then, go to “Parameter Save” screen . Steps are given below:



Uploading Saved PRO-Verter Parameters from SD Card

If there is an “xxxx_yyy.cfg” file in the SD card with stored programmed parameters, then upon inserting the card, the remote control will ask to upload the Config file. Press the Enter key to confirm or the Back key to cancel.



- Asks to confirm or cancel uploading of saved parameters.
- Choose Yes by pressing Enter key.

Configuration uploading.